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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,432	10/28/2003	Edwin Kan	1153.078US1	4472
21186	7590	03/28/2005	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			WILSON, ALLAN R	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/695,432

Applicant(s)

KAN ET AL.

Examiner

Allan R. Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 5-9 and 16-22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,10 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 2 and 11-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 07/30/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of figures 1 and 5, (Species I and IV), claims 1-4, 10-15 and 23-25, in the reply filed on 03/07/2005 is acknowledged. The Examiner has decided to examine both Species I and IV to save any further delay. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 24 and 25 are rejected under 35 USC § 102(b) as being anticipated by Rudolf, U.S. Patent No. 4,636,827 (disclosed by Applicants).

With regards to claim 1, Rudolf illustrates in figures 1-3, particularly figure 2, (entire document) a field effect transistor having a source 11, drain 12 and floating gate 20, wherein the floating gate has an extended portion; and a chemoreceptive layer 15 coupled to the extended portion of the floating gate.

With regards to claim 3, Rudolf illustrates in fig. 2 the chemoreceptive layer 15 is electrically isolated by 13b from the extended portion of the floating gate 20.

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With regards to claim 4, Rudolf discloses in col. 3, lines 61-66, the electrical isolation 13b is provided by a  $\text{Si}_3\text{N}_4$  plug.

With regards to claim 24, Rudolf illustrates in fig. 2 a dielectric layer 13b disposed between the extended portion of the floating gate and the sensing gate

With regards to claim 25, Rudolf illustrates in fig. 2 a microfluidic channel formed proximate the chemoreceptive layer 15 that selectively provides fluid to the chemoreceptive layer.

Claim 10 is rejected under 35 USC § 102(b) as being anticipated by Au et al. ("Au") U.S. Patent No. 5,719,520.

With regards to claim 10, Au illustrates in figures 1-12B, particularly figures 10A and 10B, (entire document) a field effect transistor having a source, drain (abstract) and floating gate POLY-1, wherein the floating gate has an extended portion; and multiple control gates POLY-2 coupled to the extended portion of the floating gate.

Claim 23 is rejected under 35 USC § 102(b) as being anticipated by Kolesar, Jr. U.S. Patent No. 5,071,770 (disclosed by Applicants).

With regards to claim 23, Kolesar, Jr. illustrates in figures 1-9, particularly figure 1, (entire document) providing a sample to multiple selectively receptive fingers 104; inducing a voltage  $V_{GS}$  on a floating gate capacitively coupled to the fingers; and modulating current (via voltage  $V_{DS}$ ) through a source and drain based on the induced voltage on the floating gate.

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***Allowable Subject Matter***

Claims 2 and 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Janata et al. (illustrates FETs as chemical sensors) and Stanbro et al. (illustrates capacitive chemical sensors).

Field of Search	Date
U.S. Class and subclass: 257/239, 261, 315, 321, 414	March 21, 2005
Other Documentation: None	N/A
Electronic data base(s): EAST (USPAT, US-PGPUB, JPO, EPO, Derwent, IBM TDB)	March 21, 2005

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-4:00 Monday-Thursday and 6:00-3:00 on Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "A. Wilson", with a stylized, flowing script.

Allan R. Wilson  
Primary Examiner  
21 March 2005